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OCCUPATIONAL EDUCATION AND TRAINING FOR TOMORROW'S WORLD OF WORK. NUMBER 3, AREA VOCATIONAL SCHOOLS.

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PUB DATE 65

EDRS PRICE MF-$0.25 HC-$0.24 4P.

DESCRIPTORS- *AREA VOCATIONAL SCHOOLS, *ADULT VOCATIONAL EDUCATION, EDUCATIONAL OBJECTIVES, STUDENT CHARACTERISTICS, EDUCATIONAL FINANCE, TEACHER QUALIFICATIONS, PROGRAM DEVELOPMENT,

THE PRIME OBJECTIVE OF AREA VOCATIONAL SCHOOLS IS TO PROVIDE ADULT MEN AND WOMEN WITH MARKETABLE SKILLS. TRAINING MUST INCLUDE THE REQUIRED MANUAL SKILLS, THE NECESSARY RELATED TRAINING, AND APPLIED GENERAL EDUCATION. AGE, EDUCATIONAL AND OCCUPATIONAL BACKGROUND, MATURITY, POTENTIAL SKILLS, AND AVAILABILITY OF THE STUDENTS' TIME INFLUENCE THESE PROGRAMS. QUALITY PROGRAMS ARE EXPENSIVE AND OFTEN SCHOOLS OPERATE TWO OR THREE SHIFTS FOR 12 MONTHS TO LOWER THE COSTS. THE STUDENT BODY GENERALLY INCLUDES MANPOWER PROGRAM TRAINEES, APPRENTICES, PERSONS WHO DESIRE UPGRADING, AND SOME HIGH SCHOOL STUDENTS. IN ADDITION TO TRAINING, THE SCHOOLS PROVIDE COUNSELING, PLACEMENT ASSISTANCE, AND EVALUATION REPORTS. THE AREA VOCATIONAL SCHOOL IS TRAINEE AND LABOR MARKET ORIENTED. TEACHERS ARE HIGHLY QUALIFIED AND WELL-PAID AND TEACHER CERTIFICATION IS FLEXIBLE. LARGE CAPITAL EXPENDITURES AND A POPULATION BASE OF 300,000 TO 500,000 ARE REQUIRED. OFFERINGS ARE GEARED TO JOBS OR JOB CLUSTERS. INSTRUCTIONAL COSTS ARE ABOUT $25 PER WEEK PER STUDENT, AND STUDENT FEES USUALLY COVER 25 PERCENT OR LESS OF OPERATING COSTS. OTHER ALTERNATIVES FOR VOCATIONAL TRAINING ARE DESCRIBED IN VT 001 353, VT 001 354, VT 001 356 - VT 001 358. (EM)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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OCCUPATIONAL EDUCATION AND TRAINING FOR TOMORROW'S WORLD OF WORK

NO. 3 AREA VOCATIONAL SCHOOLS

A Series of Publications by the North Central Extension Public Affairs Subcommittee on Providing Occupational Education and Training Opportunities

1965

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A THIRD ALTERNATIVE for closing the vocational training gap is a system of specialized area vocational schools. In 1956, twenty-eight states had such schools, mostly providing a two-year training program for post-high school students. By 1964, forty-two states had a total of 278 such schools.

The trend toward these schools has been given impetus by public recognition that today most people *must have* specialized training to qualify for a job in our modern, complex, mechanized, automated factories, shops, warehouses, offices, hospitals and on farms. Even janitors and dishwashers must operate specialized, expensive machinery. One indication of this recognition is the Manpower Training Program designed to take men and women from the large pool of unemployed, help them discover their potentials and provide them with a skill salable in the current labor market.

The Objective — Marketable Skills

Prime objective of area vocational schools is to provide *adult* men and women with marketable skills. This objective is adequately met only when people are able to go directly from their training program to a job at the production level in a factory, shop, warehouse or office. The job may be either a simple trade like welding, which requires only a few weeks of training, or a complex one which requires two years training or more. Such training, regardless of the "level" of the course, must include not only (1) the required manual skills, but also (2) necessary related training such as mathematics or blue print reading, and (3) applied general education such as how to approach an employer, get along with people, etc.

A Widely Variable Clientele

Keep in mind the widely variable types of adult men and women for whom these schools must provide training.

FIRST — age varies widely. Many are young people who must have special training to help get their first job or to help them get the kind of job they want. Rapidly changing technology forces the average worker to change his type of work 4 to 6 times in a lifetime. Therefore, workers of all ages must be retrained. Many who need retraining are over 50 years old. Also, workers of all ages seek further training to upgrade themselves.

SECOND — many of the younger trainees have finished high school, although a high percentage are dropouts. Too few of the older workers in retraining programs have finished high school.

THIRD — occupational backgrounds vary from highly skilled workers replaced by new technology to drop-outs from industry, youth returning from military service and housewives entering or re-entering the labor force.

FOURTH — maturity levels vary. Most trainees are close to employment realities with good occupational focus and strong motivations. Yet there are many who need motivation, a taste of success and some encouragement. The latter require close personal attention and careful counseling.

FIFTH — trainees have a wide range of potential in mental and manipulative skills. Some can muster mental and physical capacity only to operate the simplest machine or do simple tasks like dish washing. Others have the capacity for difficult, highly technical occupations.

SIXTH — time is important, especially to those who are married and need cash right away or want to "get a job and get going". Some are participants in welfare programs. On the other hand, many younger trainees can afford two or three years of training if necessary for adequate preparation.

SEVENTH — a high percentage of trainees are available for full-time study.

Vocational School — A "Training Factory"

Many types of specialized manpower are necessary to man modern factories, farms, shops, warehouses, hospitals, offices, etc. Many people need only a single trade skill — e.g., lathe operator. However, many are also needed who can perform numerous jobs in a "job cluster" — e.g., machine shop. And obviously, no firm can operate without many well-trained technicians and semi-professionals.

VT001355

Publications in this series are subtitled: No. 1 — Square Pegs and Round Holes; No. 2 — High Schools; No. 3 — Area Vocational Schools; No. 4 — Community and Junior Colleges; No. 5 — University Programs; and No. 6 — Business, Labor, and Other Private Programs.

Quality training programs for these people require training machinery or equipment which either duplicates or closely simulates that found in modern factories. This equipment is expensive. It may cost as much as $200,000 to equip a machine shop or data processing laboratory which serves only 20 students at one time. That is $10,000 per student for equipment alone.

Many area vocational schools are operated much like a factory — 2 or 3 shifts a day, 12 months a year — to lower costs per student. They may be used as the training center for many types of vocational trainees including: (1) those on a 2- or 3-year post-high school program, (2) Manpower Program trainees, (3) apprentice programs, (4) evening classes for up-grading and (5) some high school students enrolled in the vocational curriculum of their school who need training on machinery too expensive for many high schools.

In addition to modern equipment for training, most successful area schools provide: (1) intensive counseling, (2) "individualized" training, (3) placement assistance and (4) evaluation reports.

Teachers must possess demonstrated ability in the skills they teach and first-hand knowledge of the people they will be teaching. Many are hired directly from production jobs for which they will train others.

These vocational training "factories" are usually housed separately from other school facilities. Each school has a director, responsible directly or indirectly to the state superintendant of public instruction. Financing is usually controlled at the state level with most funds coming from state or federal governments. Programs are coordinated with local school boards and/or citizen groups.

Typical Training Process

The training process for this widely variable lot of people is not yet as completely standardized as most high school or college curricula. However, certain features of the process are beginning to stand out. They include:

1. **Encouragement** — Someone (local employment office, potential employer, or friend), encourages the potential trainee to go to the vocational school.

2. **Intensive counseling** — At the school, the trainee is assisted in choosing a skill to develop. Many know little of their potential, so first they are given an aptitude test. Then, a highly skilled interviewer spends considerable time discovering potential, explaining alternatives and determining desires of the trainee. Often, the trainee is shown several areas of the school to help him choose what he would like to do. This stimulates desire and initiative, often an important key to his progress. The trainee is then placed in some area or "training cluster" of the school — culinary arts, welding, machine shop, auto body, auto mechanics, electronic computers, industrial art, secretarial, etc.

3. **Sequential training** — Once in his area, the trainee is first taught proficiency on the simplest machine; for example, the drill press in the machine shop, the electric arc welder in the welding shop, the dishwasher in the cooking and baking school, etc. From the simplest skill, he progresses to one a little more complicated, then to a third, and so on until he achieves the highest degree of proficiency for which he is capable.

4. **Individualized training** — Each trainee progresses at his own speed. If he cannot learn to operate the simplest machine, there's no use putting him on a complicated one. Conversely, faster students are allowed to progress more rapidly. This rewards initiative and ability, often enabling one to get a paying job quicker. It also may provide room for additional trainees in the school.

5. **Regular shifts** — Typically, trainees work in regular daily shifts.

6. **Evaluation** — Achievement reports are prepared regularly on each trainee. This helps him evaluate his progress, identify strengths and weaknesses and provides a stimulus for him to do better. These reports are also valuable to take to prospective employers.

7. **No loafers** — If individuals show no progress at all they are either moved to another type of training or dropped from the school. Expert initial counseling helps keep the number of such terminations low.

8. **Team teaching** — Usually, a team of teachers is used for each program to take advantage of specialized skills. One may be used for training in "hand skills", another for "related" training and a third for "general education". This also provides daily variety for trainees.

Important Considerations

The following analysis should be useful in comparing the area vocational training school with several other alternatives for providing people with marketable skills. It considers such things as meeting the specific needs of trainees, orientation to the current labor market, efficiency in the use of expensive physical facilities, costs, population base required, availability of teachers, and citizenship training offered.

Oriented to the Trainee

Specialized vocational school administration and staff are oriented 100 percent to fulfilling occupational training needs. Entrance requirements are low, but not uniform. Some schools require high school graduation while those oriented to U. S. Manpower Training programs may require either graduation or "out of school 6 months" or age 16 or simply demonstrated interest and capacity to learn.

A person can enter the school about any time convenient for him. Some schools permit entrance at any time, especially where there is an on-going program. In others, a new class is started whenever enough trainees are secured, usually 15 to 25.

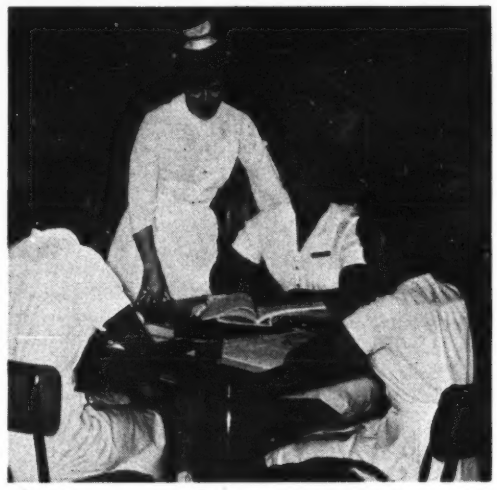
Length of course is tailored to the time needed to acquire necessary skills for a given occupational objective. For some occupations, training may require only a single course 4 to 6 weeks long. Others may require a curriculum of several courses covering 2 or 3 years. This flexibility permits students to take a job at the earliest possible date.

Upon completion most trainees can enter an occupation at the production level. Imagine the joy of the Indianapolis girl who got a job as an industrial artist at $1.90 an hour after only 6 weeks of training by a skilled instructor. Prior to this, she had been refused employment at numerous places.

Oriented to the Labor Market

Directors of vocational schools are in constant contact with employers to determine needed skills. Once a need is determined, training programs are quickly adjusted to meet it.

For example, men who can operate heli-arc welders are currently in big demand. As many potential trainees as possible are being trained in 1965 to fill this market shortage. The heli-arc welder is a gun which emits welding wire at a predetermined speed. It makes a smooth weld. The person operating it must have good eyes and be well coordinated.



LEFT — Demonstrated skills and teaching competence are essential in vocational school programs. CENTER — Nurses aide training in vocational schools is an important area for meeting today's social needs. RIGHT — Vocational students benefit from intensive counseling.

He must be able to adjust the machine to his eye and hand speed. The pay is good — $2.50 to $3.00 per hour.

When a shortage develops in some other skill, a higher proportion of trainees will be funnelled into that gap.

There is a constant need for revision of equipment in schools to keep it the same as what the student will find when he takes a job. Only schools which are in constant contact with industry can make these revisions. Often, industrial firms help provide this equipment in order to receive better trained workers.

Highly Qualified, Highly Paid Teachers

A major qualification of teachers in a vocational school is ability to do the job for which they are training others. Consequently, most teachers hired for these schools have experience in the job they are teaching. Some are hired directly from the production line.

Teachers hired from production situations are usually very even tempered, confident, sincere, understanding and dedicated to helping others. They are also long on production know-how but short on teaching know-how. Therefore, they are provided with courses on how-to-teach. Like their students, they too benefit from training for their new occupation.

Although few of these teachers have college educations, they command high wages. In industrial areas where average wages in manufacturing are 115 to 140 dollars a week, teachers cannot be hired for less than $8,000 to $10,000 a year. Some with special skills, such as operating electronic computers, get $12,000 to $13,000 a year. This is substantially higher than the salary scale of high school teachers and many college professors. A large supply of potential teachers such as these exists in industrial centers. Employers are usually quite cooperative in supplying their employees as teachers, recognizing that they will receive better trained workers in return.

Teachers can be re-trained quickly by either providing them a leave of absence to "go back to the factory" for a short time or by enrolling them in a factory training program.

Economics of Specialization and Size

Investment required for area vocational schools is high. There are several reasons for this.

The labor market is widely diverse. Large factories, stores, restaurants and warehouses require many different job skills in each department. To adequately prepare people for the many jobs available, vocational schools need several areas or "clusters", each with facilities for training in several skills.

For example, in the culinary arts division, skills include dishwashing, vegetable preparation, meat cutting, fry cooking, baking and serving. In office training, skills include typing, shorthand, transcribing dictation, bookkeeping, filing and reception. In the machine shop, skills include operation of drill presses, horizontal lathes, vertical lathes, automatic screw machines and set-up work.

Total capital costs for a vocational school are not only high, they are also highly variable, depending on cost of land, type of equipment required for training, type of training offered, number of divisions in the school, whether new or used buildings are needed.

Costs of specialized administrators, counselors, etc. are also high. To use this management efficiently, it is usually necessary to provide numerous areas of training and a sizable student population.

Equipment costs are a more important factor in training workers for expensive, production line jobs than for training typists, punch card operators, etc. Hence, training for occupations such as typing can be done in conjunction with other educational programs, for example, those in high schools.

To offer high-quality training at reasonable cost in one or a few areas of work is more important than trying to set up many areas of training in the school.

Where buildings and other fixed costs for vocational training already exist in high school buildings, for example, one building can be used for training people for one or a few occupations, a second for several others, etc. This permits high quality training as well as the savings which accrue to specialization.

Large Population Base Required

Experience indicates that a population base of 300,000 to 500,000 people is required for area vocational schools offering training in numerous areas, or "clusters".

To operate such vocational training schools efficiently requires about 1,000 trainees at any given time. This is one percent of a labor force of 100,000. To produce a labor force of 100,000 requires a total population of a little over 250,000. To operate less comprehensive vocational schools requires a smaller base.

As post-high school vocational training expands and a higher percentage of the labor force takes such training, the population base required to produce 1,000 trainees will be reduced.

Since it is difficult to commute more than 30 to 50 miles for training, potential trainees living in sparsely populated

areas are at a disadvantage. This can be overcome by constructing dormitories at the site of the school.

Emphasis on Employability

Little formal training time is devoted to education of trainees for citizenship. That which they do receive (about 20 percent of training time) is oriented primarily to the job for which they are training. Of course, a considerable amount "rubs off" from their teachers. Once trainees are on a payroll, they can return to special classes in general education and citizenship. Such training is a valuable supplement to their initial vocational preparation.

Continuous Motivation Required

Trainees are usually "in a hurry". They don't want to study things they already know. They want to progress as rapidly as their energy and ability will let them. If better students are forced to go only as fast as slower students, or if they can't see the relationship of what they're studying to their job, they may drop out of the program. They *are* attending voluntarily!

Relatively High Costs of Training

With large capital investment in equipment, higher-priced teachers, individualized instruction, small classes and high costs of operating supplies per student, cost per day per trainee in vocational schools is bound to be higher than for students in high schools and junior colleges.

The Upjohn Institute has estimated average training cost per student under the Manpower Development and Training Act at about $900 — or $40 a week. Estimates from other area vocational schools indicate that, after initial capital outlays are met, instructional plus operating costs can be held to about $25 a week per student.

Maximum Flexibility

Area vocational schools are a relatively new institution in many places; consequently they are not bound in a rigid framework of public understanding concerning their function by limitations imposed by local school boards on financing expensive equipment, by teachers association qualifications for teachers, by college administrative rulings that every staff member must have a Ph.D., or M.S., or at least a college education, by accreditation rules, etc.

This situation permits maximum flexibility in developing standards and guidelines for vocational training programs to most effectively serve trainees and the current labor market.

Separate Status

Since the area vocational school is basically a separate institution, people associated with it are given separate status from other types of schools. Trainees are not looked down upon by other students. Teaching personnel are rated on the basis of criteria which apply to specialized vocational teachers — not those which apply to some other category of teachers or college professors.

Financing

The pattern of financing area vocational schools is in a period of rapid change. Prior to 1960, financing was directly from the state level. Some were financed by joint local government (e.g. several counties) appropriations for vocational school purposes. Most vocational schools charged some kind of tuition or registration fees, sufficient to cover up to about 25 percent of the cost of operation.

In 1965, with substantial funds available from federal sources under the Vocational Education Act of 1963 and the Manpower Development and Training Act, some states are financing most of the cost of area vocational schools with federal funds. In many of these schools, students are charged no fees at all.

How Are Area Vocational Schools Started?

The *general* procedure for setting up a vocational training institution is roughly as follows:

1. Determine needs of the people in the area for vocational training and make funds available for setting up such an institution.

2. Determine vocational training needs of business and industry. This is sometimes done by a formal survey. Other indicators of these needs are: (1) a building boom which indicates needs for architectural design, etc., (2) large numbers of restaurants and night clubs in the area which indicate need for cooks, bakers, and waitresses, (3) rapid industrial growth in an area which indicates a need for machinists, welders, etc. (4) rapid technological changes indicating needs for computer operators, secretaries, etc. Also, want ads in the newspapers are a good indicator of needs.

3. Determine where the school is to be located.

4. Set up an advisory committee to determine curriculum and equipment needs for the school. These committees may be made up of businessmen, Chamber of Commerce members, foremen and/or supervisors in factories, educators, and others. People who make these determinations must understand tools and productive processes as well as learning and educational processes.

5. Determine entrance requirements, counseling and other standards.

6. Hire the best possible qualified personnel to carry out the organization and management of the school.

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Committee sponsored by Farm Foundation and made possible by a grant from the Ford Foundation.

The Ohio State University cooperating with the U. S. Department of Agriculture. Cooperative Extension Service, Roy M. Kottman, Director, Columbus, Ohio 43210. Printed and distributed in furtherance of Acts of May 8 and June 30, 1914. *1M—9:65*